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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/802,205

03/17/2004

Michael Leu

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EXAMINER

ABOAGYE, MICHAEL

ART UNIT

PAPER NUMBER

1725

MAIL DATE

DELIVERY MODE

09/25/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/802,205	Applicant(s) LEU ET AL.	
	Examiner Michael Aboagye	Art Unit 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17/03/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, and 13-15, are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki (US Patent No. 5,463,197) in view of Nakamura (US Patent No. 6,566,770).

Miyazaki discloses a wire bonder comprising: a power module supplying electrical power to drive the bondhead (see block diagram figures 1 and 2; and column 4, lines 27-33), a power switch for controlling the supply of electrical power, a timer control circuit with a counter "8" (see block diagram in figures 1 and 2, column 5, lines 29-49), a control program (figures 1 and 2; column 5, lines 50-67) and an emergency switch which upon activation shuts off power supply to the bondhead (column 8, lines 39-51). Note, the examiner considers the light curtain to be a basic feature required in any work area to enable operator's visual access and also to operate any of the equipment therein.

Miyazaki does not expressly teach expressly teach an emergency switch for causing the control program to complete a current bond cycle and then suspend the further wiring.

However, Nakamura teaches a semiconductor manufacturing apparatus, comprising, a power source unit "11" (figure 2, column 4, lines 25-67), a power control unit "5" (figure 2, column 4, lines 25-67), an emergency-off switch "1" (figure 2, column 4, lines 25-67), a reset switch "7" (figure 2 and 3A, column 4, lines 25-67) for resetting the system from the emergency state to normalcy (note this switch is associated with a timer); wherein the control unit associated with emergency switch is operable to cause a delay in the action of the emergency switch and to execute an instant operation to completion thereof (column 3, lines 41-54).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the wire bond apparatus of Miyazaki to include the emergency switch and the controller configuration of Nakamura in order to delay the process termination action of the emergency switch until a complete execution of any instant operation thereof (Nakamura, column 3, lines 41-54).

3. Claims 1-3, 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki (US Patent No. 5,463,197) in view of Schmidt et al. (WO 03/015974 , see US equivalent US Patent No. 6,566,770).

Miyazaki discloses a wire bonder comprising: a power module supplying electrical power to drive the bondhead (see block diagram figures 1 and 2; and column 4, lines 27-33), a power switch for controlling the supply of electrical power, a timer control circuit with a counter "8" (see block diagram in figures 1 and 2, column 5, lines 29-49), a control program (figures 1 and 2; column 5, lines 50-67) and an emergency switch which upon activation shuts off power supply to the bondhead (column 8, lines

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39-51). Note, the examiner considers the light curtain to be a basic feature required in any work area to enable operator's visual access and also to operate any of the equipment therein.

Miyazaki does not expressly teach expressly teach an emergency switch for causing the control program to complete a current bond cycle and then suspend the further wiring.

However, Schmidt teaches a welding system with a power source, a control circuit for controlling the safety of the welding process; a timer; at least an emergency switch associated with the safety control unit; wherein upon activation of the emergency switch does not lead to a complete shown down of the power source, but the power is shut down in a delay manner to allow an ensuing operation to be come to completion or an operator safety command is issued. The system also provides for a after emergency restart controller (Schmidt et al. (US), abstract, figures 1-3, column 7, lines 53-57 and column 8, lines 1-45).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the wire bond apparatus of Miyazaki to include the emergency switch and controller configuration of Schmidt et al. in order to delay the process termination action of the emergency switch until a complete execution of any instant operation thereof to ensure the operators safety (Schmidt et al. (US), column 8, lines 21-45).

4. Claims 4-6, and 16-18, are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki (US Patent No. 5,463,197) in view of Nakamura (US Patent

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No. 6,566,770) as applied to claim 1 above and further in view of Sugimoto et al. (US Patent No. 4,485,957).

Miyazaki and Nakamura do not expressly teach a pressure sensor.

However, Sugimoto et al. teaches a wire bonder with alt least a pressure sensor ("23 and 24", figure 8b) attached to the clasper which is operable in sending electrical signal to adjust and control the gap between the clamping arm (Sugimoto et al., abstract, column 7, lines 11-47 and column 10, lines 18-25).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to include a pressure sensor in the apparatus of Miyazaki as modified by Nakamura in view of the teachings of Sugimoto et al. to control the clamping force exerted on the wire by the clamping arms (Sugimoto et al. column 7, lines 25-47)

5. Claims 4-6, and 16-18, are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki (US Patent No. 5,463,197) in view of Schmidt et al. (WO 03/015974, see US equivalent US Patent No. 6,566,770) as applied to claim 1 above and further in view of Sugimoto et al. (US Patent No. 4,485,957).

Miyazaki and Schmidt et al. do not expressly teach a pressure sensor.

However, Sugimoto et al. teaches a wire bonder with alt least a pressure sensor ("23 and 24", figure 8b) attached to the clasper which is operable in sending electrical signal to adjust and control the gap between the clamping arm (Sugimoto et al., abstract, column 7, lines 11-47 and column 10, lines 18-25).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to include a pressure sensor in the apparatus of Miyazaki as modified by Schmidt et al. in view of the teachings of Sugimoto et al. to control the clamping force exerted on the wire by the clamping arms (Sugimoto et al. column 7, lines 25-47).

6. Claims 7-12 and 19-24, are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki (US Patent No. 5,463,197) in view of Nakamura (US Patent No. 6,566,770) as applied to claim 1 above and further in view of Behler et al. (US Pub. No. 2002/0093130).

Miyazaki and Nakamura do not expressly teach a vacuum sensor.

Behler et al. teaches a wire bonder comprising a vacuum suction device, for holding the substrate; wherein the vacuum device is associated with a sensor for control the vacuum strength at a desired level (abstract, paragraphs, [0005], [0010],[0012], [0013]-[0014]).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to use a vacuum suction device with a sensor in the apparatus of Miyazaki as modified by Nakamura in view of the teachings of Behler et al. to control the vacuum strength at a desired level to hold the substrate flat during the mounting process (Behler et al., paragraphs, [0001] and [0015]).

7. Claims 7-12 and 19-24, are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki (US Patent No. 5,463,197) in view of Schmidt et al. (WO

03/015974, see US equivalent US Patent No. 6,566,770) as applied to claim 1 above and further in view of Behler et al. (US Pub. No. 2002/0093130).

Miyazaki and Schmidt et al. do not expressly teach a vacuum sensor.

Behler et al. teaches a wire bonder comprising a vacuum suction device, for holding the substrate; wherein the vacuum device is associated with a sensor for control the vacuum strength at a desired level (abstract, paragraphs, [0005], [0010],[0012], [0013]-[0014]).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to use a vacuum suction device with a sensor in the apparatus of Miyazaki as modified by Schmidt et al. in view of the teachings of Behler et al. to control the vacuum strength at a desired level to hold the substrate flat during the mounting process (Behler et al., paragraphs, [0001] and [0015]).

Response to Arguments

8. The examiner acknowledges the applicants' amendment received by USPTO on July 09, 2007. Claims 1-24 remain under consideration in the application.

9. Applicant's arguments filed July 09, 2007 have been fully considered but they are not persuasive. In responds to the applicant's argument that Miyazaki does not mention the term "bondhead", the examiner disagrees with the applicant, the examiner believes that conventional wire bonding apparatus includes a bondhead. The examiner further cites the Patent to Yamaguchi et al. in support of this assertion (see, Yamaguchi et al., column 1, lines 26-33 and figures 1 and 2). Regarding the power module, the

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applicant's attention is drawn to figures 6 and 7, which distinctively shows the electrical circuitry for controlling the operation of the wire bonder of Miyazaki.

In responds to the applicant's argument that neither Miyazaki nor Nakamura taken either alone or in combination teaches or suggests a wire bonder comprising an electrical power supply module guaranteeing on interruption of an external power supply the supply of electrical power to the wire bonder for a minimum predetermined period of time. It is the examiner's position that the Patent to Miyazaki meets the limitations calling for wire bonder comprising an electrical power supply module, see in particular figures 6 and 7. Miyazaki however fail to show the emergency switch as claimed. Said deficiency is remedied by Nakamura who teaches an emergency switch with an interceptor of the power source, and a braking mechanism operable to cause a delay in the power cut-off to the apparatus driving system on activation of the emergency switch to enable and an instant operation to run to completion (Nakamura column 3, lines 1-11, lines 23-30 and lines 41-54). Therefore the combined teaching of Miyazaki nor Nakamura meets the claimed limitations.

The applicant argues that Schmidt et al. does not teach wire bonding. The examiner agrees with the applicant's on that note, however the examiner also takes note of the fact that an emergency switch is a known and/or a conventional accessory or device associated with an electrical or power supply, a power source or module. Furthermore said emergency switches can be used on any apparatus driven by a power source as a safety measure.

Regarding the sensor, both Schmidt et al. and Nakamura teaches and emergency switch and an associated sensor. (see Nakamura, column 2, lines 33-40) and (Schmidt et al., column 2, line 65- column 3, line 5).

Regarding the pressure sensor, the applicant argues about a different intended use of the pressure sensor in his device with respect to the Patent to Sugimoto et al., however, the intended use does not patentably distinguish said claimed apparatus over the prior art (in this instant the patent to Sugimoto et al.).

Regarding the vacuum sensor, the applicant argues about a different intended use of the vacuum sensor, in his device with respect to the Patent to Behler et al., however, the intended use does not patentably distinguish said claimed apparatus over the prior art (in this instant the Patent to Behler et al. teaches a wire bonder comprising a vacuum suction device, wherein the vacuum device is associated with a sensor for control the vacuum strength at a desired level (Behler et al. , abstract, paragraphs, [0005], [0010],[0012], [0013]-[0014])). It is further noted that the references cannot be considered individually in showing nonobviousness where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091,231 USPQ 375 (Fed. Cir. 1986).

Conclusion

10. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Aboagye whose telephone number is 571-272-8165. The examiner can normally be reached on Mon - Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jonathan Johnson can be reached on 571-272-1177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



JONATHAN JOHNSON
PRIMARY EXAMINER



Michael Aboagye
Assistant Examiner
Art Unit 1725

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